

CLAIMS

1. A method of forming a TDM frame, the method comprising
determining an available bandwidth for a current TDM data frame;
selecting a predefined TDM bandwidth with a predefined payload size, wherein the predefined TDM bandwidth is greater than the available bandwidth.
determining an fractional payload size for the current TDM data frame based on the available bandwidth; and
creating the current TDM data frame having a payload that is less than or equal to the fractional payload size.
2. The method of Claim 1, further comprising creating a header for the current TDM frame based on the predefined TDM bandwidth and the predefined payload size.
3. The method of Claim 1, wherein the predefined TDM bandwidth is an integral multiple of a base bandwidth.
4. The method of Claim 3, wherein the base bandwidth is OC-1/STS-1.
5. The method of Claim 3, wherein the available bandwidth is not an integral multiple of the base bandwidth.
6. The method of Claim 1, wherein the creating the current TDM data frame having a payload that is less than or equal to the fractional payload size comprises:
receiving a plurality of TDM data columns;
receiving a plurality of data packets,

transforming a first subset of the data packets into one or more TDM packet columns;

combining the TDM packet columns with a first subset of the TDM data columns to form the payload of the current TDM data frame.

7. The method of Claim 6, wherein a TDM packet column includes a high priority data packet and a low priority data packet.

8. The method of Claim 6, wherein the receiving a plurality of TDM data columns further comprises receiving an incoming TDM data frame containing a second subset of TDM data columns.

9. The method of Claim 8, wherein the receiving a plurality of TDM data columns further comprises receiving a third subset of TDM data columns from a TDM user interface.

10. A method of transmitting TDM data frames between a first network node and a second network node over a data link, the method comprising:

determining an available bandwidth for a current TDM data frame;

selecting a predefined TDM bandwidth with a predefined payload size, wherein the predefined TDM bandwidth is greater than the available bandwidth.

determining an fractional payload size for the current TDM data frame based on the available bandwidth;

creating the current TDM data frame having a payload that is less than or equal to the fractional payload size; and

transmitting the current TDM data frame from the first network node to the second network node using timing based on the predefined TDM bandwidth.

11. The method of Claim 10, further comprising padding the payload of the current TDM data frame to be of the predefined . payload size.

12. The method of Claim 10, further comprising creating a header for the current TDM frame based on the predefined TDM bandwidth and the predefined payload size.

13. The method of Claim 10, wherein the predefined TDM bandwidth is an integral multiple of a base bandwidth.

14. The method of Claim 13, wherein the base bandwidth is OC-1/STS-1.

15. The method of Claim 13, wherein the available bandwidth is not an integral multiple of the base bandwidth.

16. The method of Claim 10, wherein the creating the current TDM data frame having a payload that is less than or equal to the fractional payload size comprises:

- receiving a plurality of TDM data columns;
- receiving a plurality of data packets,
- transforming a first subset of the data packets into one or more TDM packet columns;
- combining the TDM packet columns with a first subset of the TDM data columns to form the payload of the current TDM data frame.

17. The method of Claim 16, wherein a TDM packet column includes a high priority data packet and a low priority data packet.

18. The method of Claim 16, wherein the receiving a plurality of TDM data columns further comprises receiving an incoming TDM data frame containing a second subset of TDM data columns.

19. The method of Claim 18, wherein the receiving a plurality of TDM data columns further comprises receiving a third subset of TDM data columns from a TDM user interface.

20. A method of forming a plurality of TDM frames, the method comprising

determining a first available bandwidth for a first TDM data frame;

selecting a first predefined TDM bandwidth with a first predefined payload size, wherein the first predefined TDM bandwidth is greater than the first available bandwidth.

determining a first fractional payload size for the current TDM data frame based on the first available bandwidth;

creating the first TDM data frame having a first payload that is less than or equal to the first fractional payload size; and

determining a second available bandwidth for a second TDM data frame;

selecting a second predefined TDM bandwidth with a second predefined payload size, wherein the second predefined TDM bandwidth is greater than the second available bandwidth.

determining a second fractional payload size for the current TDM data frame based on the second available bandwidth; and

creating the second TDM data frame having a second payload that is less than or equal to the second fractional payload size.

21. The method of Claim 20, further comprising creating a first header for the first TDM frame based on the first predefined TDM bandwidth and the first predefined payload size.

22. The method of Claim 21, further comprising creating a second header for the second TDM frame based on the second predefined TDM bandwidth and the second predefined payload size.

23. The method of Claim 20, wherein the first payload size does not equal the second payload size.

24. The method of Claim 20, wherein the first available bandwidth does not equal the second available bandwidth.

25. A method of forming a current TDM data frame, the method comprising

receiving an incoming TDM data frame having an incoming header defining a first payload size and an incoming payload of a second payload size;

forming a new payload of the first payload size;

filling the new payload with data from the incoming payload;

forming the current TDM data frame with the incoming header and the new payload.

26. The method of Claim 25, further comprising recovering a TDM clock signal from the incoming TDM data frame.

27. The method of Claim 25, further comprising stuffing the new payload with a plurality of stuff bytes.

28. A system for forming a TDM frame, the system comprising
means for determining an available bandwidth for a
current TDM data frame;

means for selecting a predefined TDM bandwidth with a
predefined payload size, wherein the predefined TDM
bandwidth is greater than the available bandwidth.

means for determining an fractional payload size for
the current TDM data frame based on the available bandwidth;
and

means for creating the current TDM data frame having a
payload that is less than or equal to the fractional payload
size.

29. The system of Claim 28, further comprising means for
creating a header for the current TDM frame based on the
predefined TDM bandwidth and the predefined payload size.

30. The system of Claim 28, wherein the predefined TDM
bandwidth is an integral multiple of a base bandwidth.

31. The system of Claim 30, wherein the base bandwidth is
OC-1/STS-1.

32. The system of Claim 30, wherein the available bandwidth
is not an integral multiple of the base bandwidth.

33. The system of Claim 28, wherein the means for creating the current TDM data frame having a payload that is less than or equal to the fractional payload size comprises:

- means for receiving a plurality of TDM data columns;
- means for receiving a plurality of data packets,
- means for transforming a first subset of the data packets into one or more TDM packet columns;
- means for combining the TDM packet columns with a first subset of the TDM data columns to form the payload of the current TDM data frame.

34. The system of Claim 33, wherein a TDM packet column includes a high priority data packet and a low priority data packet.

35. The system of Claim 33, wherein the means for receiving a plurality of TDM data columns further comprises means for receiving an incoming TDM data frame containing a second subset of TDM data columns.

36. The system of Claim 35, wherein the means for receiving a plurality of TDM data columns further comprises means for receiving a third subset of TDM data columns from a TDM user interface.